Non-Prompt ν Generation

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February 22, 2005

The problem

- Niki reported a data/MC difference in the EMCal energy distribution (Jan Collab meeting)
- Problem traced to Non-Prompt neutrino "generator"
  - NP Neutrinos picked from a file (5K of 10k used)
  - Weighted fraction of NP events is ~1/2 of that requested
  - Anti$-\nu$'s have ½ the weight of ν's (??)
  - The 5k neutrinos are heavily over-sampled (7x?)

Solutions

- Re-use NP ν's and rotate randomly around Z=0
- Replace NP file with NP generator
  - ➤ Work in progress
  - ➤ NP "generator" based on fits to the 10k NP ν's
    - o Parameterize momentum spectrum
    - o Parameterize theta
    - o Generate anti-ν (50%) ν (50%)
    - o Adjust NP weights to equal NP/Total fraction desired in mymc.ctl
    - o Plots shown in npgen.ps
  - ➤ Generated 5k MC event w NP generator
    - o Standard ratios (NP fraction 0.5)
    - o Plots shown in npcheck.ps